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09/741,411	12/20/2000	Andrzej Partyka	A. Partyka 20	6314

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EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2631	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/741,411	Applicant(s) PARTYKA, ANDRZEJ	
	Examiner Khanh Tran	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gastouniotis et al. U.S. Patent 5,438,329.

Regarding claim 1, Gastouniotis et al. invention is directed to a system for automatically transmitting information by RF signals from a plurality of remote instrument reading units to a stationary or mobile data collection center. Figure 1 illustrates a telemetry system includes a plurality of remotely located instrument reading units or instrument links 2, each comprising a self power receiver 44 and a transmitter means 30, and each associated with an data gathering device 4. The system also includes at least one remote station 6 (interrogation apparatus) that interrogates the instrument links 2 and separately receives the transmitted output from each data link.

In column 4, lines 47-61, figure 1 further illustrates two modes of operation wherein in one operational mode, an instrument link 2 automatically transmits data at fixed intervals to the remote station 6. As appreciated by one of ordinary skill in the art in light of the foregoing teachings, each instrument link 2 transmits signals intermittently to the remote station 6. Gastouniotis et al. does not

expressly disclose the transmissions at a plurality of frequencies independently of any receiver of said transmissions as claimed in the pending application. In column 6, line 65 through column 7 line 47, a transmitter means 30 (see figure 2) of each instrument link 2, tunable to a plurality of frequencies, is configured to use spread spectrum modulation including frequency hopping technique for transmitting link messages. As well known in the art of spread spectrum modulation utilizing frequency hopping method, the use of unique spreading functions allows band sharing between multiple systems because the desired signal can be received and decoded in the presence of other signals using different spreading functions. In light of the foregoing, transmission of each instrument link 2 is transmitted at a plurality of frequencies independently from transmissions of other instrument links 2 as claimed in the pending patent application.

The remote station 6 in figure 4 includes transmitter 80 and receiver 82 receives the transmitted output from each instrument link 2 separately. Each instrument link 2 has a unique, pre-specified identification number, which is embedded in a transmitted signal. Hence, the remote control 6 discriminates transmissions based on the expected and actual transmission frequency (using different spreading functions, e.g. different frequency-hopping sequence), and an expected time and actual transmission time, e.g. transmissions in fixed intervals as recited above.

As disclosed in column 15, line 50 through column 16 line 14, a digital controller 88 of the remote station 6 further evaluates the reply channel to determine if a pseudorandom code length is being used that could interfere with system operation. The remote station 6 transmits an interrogation message, which includes transmission mode, the reading cycle number, the pseudorandom code length, the clear reply channel, and the reply-window length. Hence, it would have been obvious by one of ordinary skill in the art that transmission data from an instrument link 6 would indicate an expected frequency of future transmission. The expected time of future transmission is known to the remote station 6 due to transmissions at fixed intervals.

Regarding claim 2, as recited in claim 1, the remote station 6 determines the authenticity of transmissions based on the unique frequency sequence employed by the instrument link 2, and the unique, pre-specified identification number.

Regarding claim 3, Gastouniotis et al. invention teaches utilization of spread spectrum modulation technique including frequency-hopping method. As well known in the art of spread spectrum modulation, frequency hopping inherently encrypts data due to unique frequency hopping sequence. On the receiving side, the remote station 6 receives and despreads the message signal, which equivalently decrypts received message as claimed in the pending patent application.

Regarding claim 4, Gastouniotis et al. does not expressly disclose the encryption key varies for each of a plurality of transmissions. As disclosed in column 15, line 50 through column 16 line 14, the digital controller 88 of the remote station 6 evaluates the reply channel to determine if a pseudorandom code length is being used that could interfere with system operation. In light of that, the remote station 6 could send an interrogation message to instruct an instrument link 2 using different pseudorandom code length. Hence, it would have been obvious for one of ordinary skill in the art that the instrument link 2 could have different frequency sequence for each of plurality of transmissions due to interference as pointed out above.

Regarding claim 5, as recited in claim 3, Gastouniotis et al. teaches utilization of frequency-hopping method that would determine the encryption key as claimed in the pending patent application.

Regarding claim 6, Gastouniotis et al. does not expressly disclose a modifier in the invention. However, since each instrument link 2 has a unique, pre-specified identification number as recited in claim 1, it would have been obvious for one of ordinary skill in the art that the transmitter of an instrument link 2 modifies transmitted message for each of a plurality of transmissions to include link identification number for transmission by using a modifying means.

Regarding claim 7, as recited in claim 1, each instrument link 2 may employ frequency-hopping method for transmission. Therefore, the modifying means as disclosed in claim 6 is varied based on frequency hopping.

Regarding claim 8, figure 4 illustrates a remote station 6 including a transmitter 80, a receiver 82, a digital controller 88, and a host computer 90 for receiving and storing the instrument link messages. Hence, the receiver 82 corresponds to the claimed circuitry for receiving the transmissions. The host computer 90 and digital controller 88 constitute the claimed logic for holding simultaneously for each plurality of transmissions as discussed in claim 1.

As recited in claim 1, each instrument link 2 has a unique, pre-specified identification number. Each instrument link 2 transmits signals intermittently at fixed intervals, and has a unique frequency hopping sequence determined by a pseudorandom list. The remote station 6 transmits an interrogation message, which includes transmission mode, the reading cycle number, the pseudorandom code length, the clear reply channel, and the reply-window length. In light of the foregoing, the receiver holds instrument link messages simultaneously for each of plurality of instrument link transmitters. As appreciated by one of ordinary skill in the art, the instrument link message is indicative of an expected frequency (clear reply channel and pseudorandom sequence) of next future transmission. The expected time of future transmission is known to the remote station 6 due to transmissions at fixed intervals.

The remote station 6 in figure 4 includes transmitter 80 and receiver 82 receives the transmitted output from each instrument link 2 separately. Each instrument link 2 has a unique, pre-specified identification number, which is embedded in a transmitted signal. Hence, the remote control 6 discriminates transmissions based on the expected and actual transmission frequency (using different spreading functions, e.g. different frequency-hopping sequence), and an expected time and actual transmission time, e.g. transmissions in fixed intervals as recited above.

Regarding claim 9, said claim is rejected on the same ground as claim 2.

Regarding claim 10, said claim is rejected on the same ground as claim 3.

Regarding claim 11, since each instrument link 2 uses a unique frequency hopping sequence, the receiver of the remote station 6 despreads each instrument link message using different pseudorandom sequence, corresponding to the claimed using different decryption key for each of plurality transmissions.

Regarding claim 12, as recited in claim 8, the remote station 6 transmits an interrogation message, which includes transmission mode, the reading cycle number, the pseudorandom code length, the clear reply channel, and the reply-window length. The reply instrument message includes data indicative of an expected frequency

(corresponding to clear reply channel and pseudorandom sequence) of one future transmission as claimed in the pending patent application. The expected time of future transmission is known to the remote station 6 due to transmissions at fixed intervals.

Regarding claim 13, as recited in claim 8, in the case of frequency hopping method, each instrument link 2 has a unique frequency hopping sequence determined by a pseudorandom list. Hence, the receiver of the remote station 6 verifies each instrument link message by despread the received frequency hopping signal. The remote station 6 also verifies each instrument link message by a unique, pre-specified identification number modified by a modifying means in the instrument link 2. The modifying means is varied for each of transmission due to frequency hopping sequences.

Regarding claim 14, as recited in claim 8, the remote station 6 transmits an interrogation message, which includes transmission mode, the reading cycle number, the pseudorandom code length, the clear reply channel, and the reply-window length. Hence, the reply message includes data indicative of an expected frequency (corresponding to clear reply channel and pseudorandom sequence) of one future transmission. The expected time of future transmission is known to the remote station 6 due to transmissions at fixed intervals. Hence, the receiver of remote station 6 determines the modifier for each of plurality of instrument links 2.

Regarding claim 15, figure 2 illustrates an instrument link 2 including a receiver 44 and a transmitter means 30. As disclosed in one embodiment, the instrument link 2 automatically transmits data at fixed intervals to the remote station 6. In the case of frequency hopping, each instrument link 2 has a unique frequency sequence determined by a pseudorandom list. In light of the foregoing teachings, the instrument link 2 transmits signal intermittently at fixed intervals, and at various frequencies as claimed in the pending patent application.

The receiver 44 of the instrument link receives an interrogation signal transmitted by a remote station 6. The interrogation message includes transmission mode, the reading cycle number, the pseudorandom code length, the clear reply channel, and the reply-window length. As appreciated by one of ordinary skill in the art that received message data indicates frequency and time of one future transmission based on current transmission frequency as claimed in the pending patent application. The receiver 44 constitutes to the claimed logic for holding upon each of transmissions.

As well known in the art of frequency hopping method, utilizing frequency-hopping sequence is equivalent to encryption of data for transmission. Gastouniotis et al. does not expressly disclose the encryption key varies for each of a plurality of transmissions. Nevertheless, as disclosed in column 15, line 50 through column 16 line 14, digital controller of the remote station 6 evaluates the reply channel to determine if a pseudorandom code length is being used that could interfere with system operation. In light of that, it would have been obvious

for one of ordinary skill in the art that the instrument link 2 could have different frequency sequence for each of plurality of transmissions due to interference as pointed out above.

Regarding claim 16, as disclosed in claim 15, depending on the evaluation of the reply channel to determine if a pseudorandom code length is being used that could interfere with system operation, it could indicate different frequency hopping used to alleviate the interference. As appreciated by one of ordinary skill in the art that the data is indicative of frequency of next transmission as claimed in the pending patent application. The expected time of future transmission is known to the remote station 6 due to transmissions at fixed intervals.

Regarding claim 17, as disclosed in claim 15, the frequency hopping sequence is varied depending on the evaluation of pseudorandom code length being used that could interfere with system operation in the reply channel performed by the digital controller of the remote station 6.

Regarding claim 18, said claim has similar scope and is rejected on the same ground as claim 15. Gastouniotis et al. does not expressly disclose a modifier in the invention. However, since each instrument link 2 has a unique, pre-specified identification number as recited in claim 1, the transmitter of an instrument link 2 modifies transmitted message for each of a plurality of transmissions to include link

identification number for transmission using a modifying means as appreciated by one of ordinary skill in the art.

Regarding claim 19, said claim is rejected on the same ground as claim 16.

Regarding claim 20, said claim is rejected on the same ground as claim 17.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Flach et al. U.S. Patent 5,748,103 discloses "Two-way TDMA Telemetry System with Power Conservation Features".

McNair et al. U.S. Patent 5,595,342 discloses "Control System".

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER